UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,707	03/29/2004	Thomas D. Needham	POU920040025US1	1362

46369 7590 10/31/2007

HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 COLUMBIA CIRCLE
ALBANY, NY 12203

EXAMINER	
KHATRI, ANIL	

ART UNIT	PAPER NUMBER
2191	

MAIL DATE	DELIVERY MODE
10/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,707	NEEDHAM, THOMAS D.	
	Examiner	Art Unit	
	Anil Khatri	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/29/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5, 8-15, 18-26 and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by *Goodman et al* USPN 7,089,547.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 11, 21 and 22

Goodman et al teaches,

copying update control code from a first software module of a system to memory space outside a memory location of the first software module (figures 2-3 and 5, column 4, lines 63-67 and column 5, lines 1-10, Both copies, or images, of the operational code are independently executable. In some processors, position independent code may be supported, which employs relative addressing. Thus, either copy is executable in that the same relative addresses are employed for either copy. However, some processors and compilers do not support position independent code, preventing execution of more than one copy of operational code. As discussed above, additional memory may be used to copy either of the two code images into a RAM or other memory area for execution, and the firmware would be compiled to run at the address of the newly copied code in RAM. However, existing embedded systems may not have additional memory to hold a copy of the code image, and new systems would have to incur the additional cost and board space of the copy memory);

replacing the first software module with a second software module by storing the second software module in memory at a location which at least partially overlies the first software module, wherein the replacing includes employing the update control code copied from the first

software module to facilitating the replacing (column 3, lines 23-24, replaces the determined firmware code image to be updated with an update firmware code image); and

beginning execution of the second software module without resetting the system (column 7, lines 34-55, if, however, the firmware update has completed successfully, the process moves to optional step 430. In step 430, one or more of the code images that were not updated, for example the firmware code image that was previously executing, or is currently executing, is marked to prevent it from being used at the next power-on or reset of the system 100. This may be an action that causes an identifier to be set, invalid checksum, invalid CRC, invalid signature field, etc. This step is optional because it may not be necessary for an embedded system that only supports firmware updates in one direction. For example, when selecting which code image 202, 203 of FIG. 2 to execute after a reset or power-on, if neither code image is defective, then the code image with the higher firmware version may be selected. Step 430 of FIG. 4 prevents the currently executing code image from being selected after down leveling the firmware. Step 430 may also be employed in the situation where position independent code is being updated, such as in the incorporated '844 U.S. patent application, to also prevent the currently executing image from being selected. The firmware update process ends at step 437 where the embedded system may be reset to begin execution of the new update code image).

Regarding claims 2-5, 8, 12-15, 18, 23-26 and 29

Goodman et al teaches,

the replacing includes executing the update control code copied from the first software module during the replacing of the first software module with the second software module (column 3, lines 23-24, replaces the determined firmware code image to be updated with an update firmware code image and column 10, lines 1-5, computer readable program code which causes a computer processor to replace said determined firmware code image to be updated with an update firmware code image).

Regarding claims 9, 19 and 30

Goodman et al teaches,

the system comprises an embedded system, and the first software module and the second software module each comprise a firmware module (column 5, lines 23-45, Referring to FIG. 3, in one embodiment of the present invention, where the firmware code images to be updated have position dependent code, a plurality of update firmware code images 302, 303 are made available that have position dependent code, the position dependent code specifying positions of a rewritable non-volatile memory. The position dependent code of update firmware code image 302 specifies different positions of the rewritable non-volatile memory 104 of FIG. 1 from any other firmware code image of the plurality of update firmware code images, as does the position dependent code of update firmware code image 303. In the examples of FIGS. 2 and 3, the position dependent code of update firmware image 302 begins at hex address 00002000 and the position dependent code of update firmware code image 303 begins at hex address 00021000. Thus, update firmware code image 302 is suitable for replacing firmware code image 202 and update firmware code image 303 is suitable for replacing firmware code image

203 stored in the non-volatile memory 104. Again, although only two update firmware images are illustrated, several, or many firmware images may be employed, each matching a different firmware code image of the non-volatile memory 104 of FIG. 1).

Regarding claims 10, 20 and 31

Goodman et al teaches,

the replacing employs a hardware based direct memory access (DMA) operation to save the second software module to a target memory space and wherein the copying update control code comprises copying the update control code to memory space outside the target memory space, and wherein the update control code includes control code for determining when the DMA operation has completed and for branching to an entry point of the second software module upon completion of the DMA operation (see summary of the invention).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 7, 16, 17, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Goodman et al* USPN 7,089,547 in view of *Farkas et al* USPN 7,099,967

Regarding claims 6, 16 and 27

Goodman et al teaches,

the replacing includes overlaying the memory location of the first software module with the second software module the first software module (column 3, lines 23-24, replaces the determined firmware code image to be updated with an update firmware code image) but does not teach explicitly including at least one of a loader and a linker. However, *Farkas et al* teaches, (column 2, lines 62-67 and column 3, lines 1-3, Host 10 may also be executed as an application under the Intermediate System Loader (ISL) Standalone Environment. ISL is a program run after execution of the firmware in a computer system, such as a PA-RISC computer system. ISL implements a command line interface which allows the user to obtain information on the boot-up characteristics of the system; to modify these characteristics; and to load and execute programs such as the operating system, ISL-based tools, and host 10). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate loader in the replacing software process. The modification would have been obvious because one of ordinary skill in the art would have been motivated to combine teaching into using loader for to load and link other software module which needs to be overplayed into memory to achieve efficiency.

Regarding claims 7, 17 and 28

Farkas et al teaches,

the first software module and the second software module each comprise a single statically linked module (column 6, lines 57-67, In FIG. 5, a determination is made as to whether an upgrade process has been started as indicated in a block 502. Management processing system 20 determines that an upgrade process has been started in response to receiving a start upgrade message from host 10. If an upgrade process has not been started, then the function of block 502 is repeated at a later time. If an upgrade process has been started, then an acknowledgement is provided as indicated in a block 504. Management processing system 20 provides an acknowledgement by generating an acknowledge message and providing the acknowledge message to host 10).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anil Khatri whose telephone number is 571-272-3725. The examiner can normally be reached on M-F 8:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANIL KHATRI
PRIMARY EXAMINER